

W6IFE San Bernadino Microwave Society NewsLetter

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The 1 **May 1997** meeting will have Bill, WA6QYR talking to SBMS equipment. SBMS meets at the American Legion Hall 1024 Main Street Corona CA at 1930 hours local time.

Last meeting- Dick, K6HIJ talked about positioning of antennas through the use of servo systems. Thanks Dick. SBMS Officers elected for the 1997-98 period were: President, Chip N6CA; VP Joe WA6PAZ; Treasurer, Dick K6HIJ; Recording Sec, Eric KD6GLP; Corresponding Sec, Phil K6COY; Newsletter Ed, Bill WA6QYR; ARRL interface, Frank WB6CWN; FCC interface, Dave K6OW. A big thank you to the 1996-97 officers: President, Frank WB6CWN; VP, Dick WB6DNX; Rec Sec, Dick K6HIJ; Cor Sec, Larry K6HLH; Treasurer, George K6MBL; Editor, Bill WA6QYR. Visitors were Calvin Burnett KF6CT of West Covina; Ken Canfield AC6NG of Riverside; Ed Schnelbach KE6BAA of Ontario; and Craig Seelert KE6ONZ of Fontana. Welcome ALL. SBMS is to be finishing plaques for winners of the 10 GHz and 10 Ghz and up ARRL contest. 29 present.

Scheduling

10 May 1296 & 2304 Mhz ARRL Spring Sprints

5 June tech talk Phil W6HCC weak signal DSP

14-16 Jun. ARRL June VHF QSO Party

28-29 Jun. ARRL Field Day

3 July tech talk Chuck WA6EXV waveguide filters

7 August tech talk Frank WB6CWN internet microwave resources

4 Sept. tech talk Dave K6OW and Joe WA6PAZ on wide and narrow band modes on microwave

Wants and Gots for Sale

Wanted-8-10" telescope frank WB6CWN 805-499-8047

Wanted-10 Ghz wavemeter, HP5255 or 5256 plug-in Gene WA6YOJ 909-737-7615 eugenecran@juno.com

Wanted-1296, 2300 or higher low power transmitter for beacon usc (cw) Stuart K6YAZ 818-887 9144
StuartL73@aol.com.

SBMS 2.3 Ghz Beacon (from article by WA6EXV 11-79 + current stuff)

The SBMS beacon at Heaps Peak (DM14KF, 34 deg 14 min. 2.4 sec N lat., 117 deg 8 min. 25.2 sec W long, 8000 ft ASL) operates on 2304.110 Mhz plus or minus temperature variations. The frequency has been seen between 2304.080 and 2304.120 Mhz depending upon the building temperature and that of the transmitter base plate. The carrier operates all the time with vertical polarization. An MCW Identifier has a 2 minute message every 12 minutes. Following the ID there is a minute of tone whose frequency is relative to the transmitter base plate temperature. The tone is about 200 Hz for -20 degrees C to about 1500 Hz for 60 degrees. The frequency modulation is about 6 KHz deviation which easily monitored by slope detection on SSB or FM detection on multimode radios. One hundred percent copy of the message sent to WA6EXV will get you a certificate. Just a signal report will get you a QSL from Chuck. Chuck's address: PO Box 605 Ridgecrest, CA 93556.

The transmitter consists of a crystal controlled oscillator, a five stage 12 times multiplier/amplifier and 2 step recovery diode triplers. FM is provided by applying audio to a balanced varactor diode modulator tied to the crystal oscillator. The five stage multiplier/ amplifier raises oscillator frequency to 255.66 at a power level of about 15 watts. The first SRD tripler output is 766.88 Mhz followed by the second SRD output at 2304 Mhz at a power level of at least 2.5 w. A 3 pole interdigital filter is used on the output to reduce harmonics. In order to protect the transmitter from antenna faults, a ferrite isolator is on the output of the transmitter.

The antenna just above the building is an omnidirectional vertically polarized collinear array housed in a PVC tube for protection. The antenna has a gain of about 6.7 dBd. There is about 10 ft of heliax connecting the transmitter to the antenna. The IDer uses an EPROM and the bit rate is adjustable. It is set to about 18 wpm.

AC mains power the beacon transmitter, 450 Mhz control receiver, touch tone decoder, message generator and keyer. Power consumption is about 40 watts.

Just to check out the beacon before entering data in the newsletter, I installed a WA3RMX triband printed circuit board feed in to an old MA/COM 27 inch dish/tub and traveled up a hill at DM15DL about 90 miles distant from Heaps Pk. At 1300 on 11 April the beacon was on and providing 10 over S-9 signals. Good luck- Bill WA6QYR.

On 21 April Chuck, WA6EXV reported hearing the beacon at his house with his 10 ft dish and a 7 dB NF preamp with a 27 dB S/N. He saw it at 2304.108 Mhz and the TM was telling him the transmitter base plate was 30 degrees C. Chuck used Spectrum Plus DSP software to measure tones and S/N. Chuck is looking over two mountain ranges to catch the beacon signals.

Activity report from the 3 April SBMS meeting

Dave, K6OW brought his 5.6 Ghz rig to show; Chip, N6CA worked some mods for NASA to allow them to talk to MIR; Al K6LJM has been doing propagation studies on ATV signals 1.2-10 Ghz between Running Springs 6 Kft and Santiago 5 kft; Gary W6KVC has been doing 3 and 10 Ghz ATV; Lloyd AB6SM went to a hill top to hear beacons on 10 Ghz; Dick, K6HIJ has been building flanges; John KC6YVS working on 10 ghz ATV; Eric KD6GLP reviewing WA6EXV slot antenna design; John WA6BFH working on a 10 Ghz data group; Ed K6ODV working on a 10 Ghz rig; Ken WB6DTA working on a 24 Ghz system; Bob W6SYA the WBFM 10 Ghz rigs is back working and has a 24 Ghz rig in works; Dick WB6DNX working on 2 Ghz equipment; Chuck WA6EXV has 10 Ghz tower back in operation, tracks sun wonderfully with 100 % computer control; Phil W6HCC, has weak signal DSP working at 100% at 0 S/N and 90% at about -10 dB S/N; Bill, WA6QYR is working on tuning up a 3 GHz no tune rig.

The April meeting of the Microwave Group of San Diego will be on Monday the 21st at Kerry Banke's (N6IZW) QTH in La Mesa. It will feature a workshop to calibrate all our various microwave power meters and related attenuators and directional couplers against a certified power meter borrowed for the occasion. Frank Adams, AE6L is near completion of his new ARR-style 24 GHz Gunplexer rig. He had to delay a bit for a hospital stay. Ed Munn, W6OYJ has just completed TWO working 24 GHz Gunnplexer rigs and hopes to work somebody during the April 19 SBMS scheduled 24 GHz day, even if he has to loan one rig out to somebody else for the event. One uses a NEC 5 mw Gunn/Mixer with WA6EXV if preamp and TDA7000 Rcvr, and 12 inch 33 dBi dish. The other rig has a 100 mw Gunn source, circulator, waveguide mixer, no preamp, ARR i.f. receiver and 15-inch dish. 73 from Ed, W6OYJ

Activity for March/April- My microwave activity for the last couple of months has been pretty sparse, but here is what I have done when I had a few free moments: Checking out 39 Ghz gunn oscillator to see if it could be usable on 78 Ghz. Saw some energy up there, but it looks like I will have to build a diode doubler. Collecting parts for 47 Ghz station. That's all for now, 73, Brian Yee, W6BY byee@sgi.com

West Coast VHF Conference Hi- Has anyone heard if there is to be a West Coast VHF conference this year? For some 40 years it was in May. Here we are in early April and I haven't seen any suggestion that it is going to happen.

Parabolic Dishes available --I have an elliptical reflector ~ 4 foot (minor axis) $f/D=0.7$ and a 10 foot, 6 pedal, dish $f/D\sim 0.36$. Both are fiberglass construction originally used on C band. The elliptical dish is free to who ever hauls it away. I have \$50 directly invested in the 10 foot dish, but I will help you load it and the pedestal onto your trailer at no extra. Pete, W6DXJ bauer_pw@nosc.mil>

AMSAT Phase 3D Final Frequencies - Date: Sun, 13 Apr 1997 10:19:06 -0700 Fellow Hams, What I recently sent was a link to the AMSAT web page listing the next satellite's frequencies. Of particular interest are the microwave transponder and beacon frequencies (up to 24 GHz). I browse with Microsoft Internet Explorer 3.02 which provides link forwarding in e-mail messages with just a few button clicks. I guess they may not appear with the same functionality if you use another browser, otherwise you'd see a cute little icon that you'd click on and be wooshed to that site. The link I sent was to: <http://www.amsat.org/amsat/features/p3ddigt1.html>. Frank WB6CWN

My "World Above 1000MHz web site" has a new URL:

<http://www.geocities.com/SiliconValley/Vista/7012/ghz.htm>. Please address all microwave related e-mail to my forwarding address: microwave@star-trek.com. 73 and thanks for looking Peter Day G3PHO Editor RSGB Microwave Newsletter [note SBMS now trades newsletters with Peter. He has a fine publication].

ARLX008 Edward P. Tilton, W1HDQ, SK ARRL Headquarters was saddened to learn that VHF pioneer and former QST VHF Editor Ed Tilton, W1HDQ, of Spring Hill, Florida, died March 1. He was 89. In December 1939, Tilton inaugurated the first QST column devoted to VHF. Originally called "On the Ultra Highs," it eventually became "The World Above 50 Mhz." Tilton edited the VHF column until he retired from the ARRL staff in 1960, reporting on-the-air activity and encouraging experimentation initially on the then 56 and 112-MHz amateur allocations and, later, on all VHF and UHF bands. The UHF DX Records box--the precursor of today's standings boxes--debuted in 1940. He was the author of the ARRL's first VHF Manual and wrote numerous articles for QST. [Ed came to an SBMS meeting in the '70's and some of us were lucky enough to get his autograph on the VHF Manual. He will be missed. -ed.].

Hello all, Please consider our invitation to join W6AMT for some QSOs this June VHF Contest, June 14th and 15th. We will be operating from the appropriately named Mt. Diablo, CM97bv, on 50 MHz through 2.3 GHz, most modes. We will also have 10 GHz (WBFM), your basic MCW laser, and hopefully 24 GHz (also WBFM). Naturally, we are looking for schedules for rovers and other "hard to snag" contact possibilities. As we get them, we will post them on our W6AMT June Contest Web Page: <http://www.amt.org/June97> Please feel free to contact us before or DURING the contest at: June97@amt.org 73, and see you in June,-George w6mt

73's Bill

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